


Work and Power:

- Work:

- Work is done on an object when a force changes the motion of an object
- Direction of force and displacement must be along the same axis
- Equation: $W = \vec{F} \cdot \vec{d}$
 $= Fd \cos \theta$ 

$$\boxed{W = Fd}$$

- If force and displacement vectors are perpendicular to each other, there is NO work being done on the object.
- Units: Force $\rightarrow N = \text{kg} \cdot \text{m}/\text{s}^2$
displacement $\rightarrow m$
Work $\rightarrow N \cdot m = \text{Joule (J)}$

- Power:

- Work divided by the amount of time work is done

- Equation: $P = \frac{W}{t} = \frac{Fd}{t}$

- Units: Work \rightarrow J

- Time \rightarrow s

- Power \rightarrow J/s = Watt (W)